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ABSTRACT

The Board of Education of the School District of the City of Saginaw requested the Department of Evaluation Services to review the literature relative to competency testing, especially for the elementary grades. This review on competency testing programs and competency based education (CBE) covers several areas. The emphasis on educational accountability has increased during the past 28 years. CBE consists of three elements. Minimum competencies should be defined by how effectively students can function in life roles. The attainment of specific competencies should be a standard for graduation. A summary of what constitutes successful performance of competencies should be included in the certification process. Activities of other school districts in this area are discussed. The alternatives to be tested in a competency based testing program include basic skills, school subjects, life role competency areas, and basic skills applied in school subjects and life role competency areas. The various methods to assess minimum competency in these areas is discussed. An illustration is given of how one district began its program as well as a listing of benefits and problems. Recommendations for competency program design conclude the review. (DWH)

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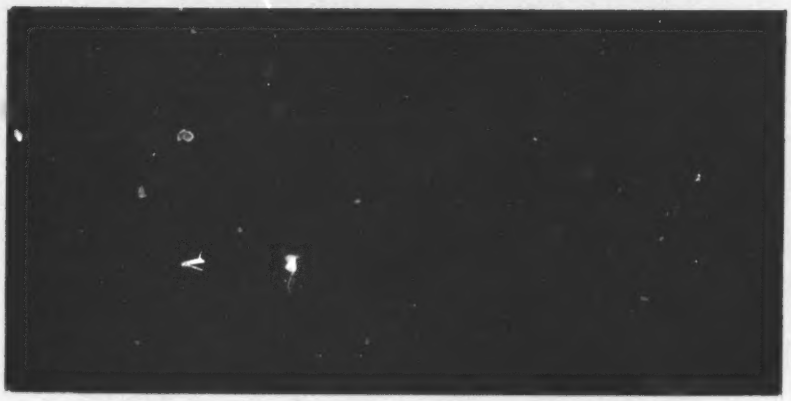

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DEPARTMENT OF EVALUATION SERVICES

- PROVIDING ASSESSMENT, PROGRAM EVALUATION AND RESEARCH SERVICES -

Saginaw Public Schools

Saginaw, Michigan

TM 820 163

COMPETENCY TESTING: A REVIEW OF THE LITERATURE

An Approved Report of the

DIVISION OF ADMINISTRATION AND PERSONNEL

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ORIGINS

It is not possible to pinpoint a particular event or date that triggered the onset of the competency testing movement. Many seemingly isolated happenings have pointed to a reemphasis on educational accountability during the last 25 years. Among them are:

1955--The topic of education became a "best seller" with critical books such as Why Johnny Can't Read, The Way It Spozed To Be, How Children Fail, The Underachieving School, and Crisis in the Classroom. Questioning traditional methods of instruction and suggesting change became the theme of many authors.

1963-1970--Scholastic Aptitude Test (SAT) scores declined significantly in both verbal and math sections; College Entrance Examination Board (CEEB) panel blamed lack of emphasis on basics and lowered educational standards for the decline.

1969--Right to Read programs started; the federal commissioner of education (James Allen) acknowledged serious deficiencies in students reading achievements.

1970--Ralph W. Tyler (in Accountability in Education) reflected on three developments between 1960 and 1970 which have influenced the current emphasis with accountability--1) increasing proportion of average family's income spent on taxes, 2) fairly large number of youths failing to meet literacy standards, and 3) industry and defense developing management procedures which increased effectiveness and efficiency.

1970--Leon Lesinger's Every Kid a Winner called for a dramatic educational transformation within a decade, using a process of management that defines educational goals in measurable and observable terms.

Early 1970's--National Assessment of Educational Progress (NAEP): scores declined on its science and writing tests (loss of one-half year from 1970-1974).

1976--Gallup Poll of Public's Attitudes Toward the Public Schools: 59% felt decline in National test scores meant that the quality of education was declining; 51% felt more attention should be devoted to teaching basic skills; 65% favored a nation-wide standardized test for high school graduation.

1965-present--employers have increasingly found high school and some college graduates lacking basic skills.

During the 1980's, a growing number of state legislatures, state boards of education, and local school districts are responding to the public's belief that some graduating class members lack minimum levels of competency. Some educational agencies are beginning competency programs for students as one step to improve their children's education. In looking at this effort many questions come to mind.

- What is a competency?
- Who is competent?
- What are local districts doing in the competency area?
- What success have they had?
- What areas should be included in a set of competencies?
- Who decides which areas are included?

- What problems result from using a competency based educational system?

- What are the positive outcomes of competency based testing?

- Ultimately, what recommendations can be offered to local school districts if competency testing is considered for implementation?

This review of the literature on competency testing programs and competency based education addresses some of these questions.

DEFINITION

Competent is defined as "properly or well qualified, capable, adequate for the purpose." The difficulty arises in determining what is "adequate" and how can it be measured.

William G. Spady formulated a definition of competency-based education (CBE) which encompassed three key elements: the minimum set of competencies resulting from schooling should be defined in terms of how the student is able to function effectively in life roles; the attainment of a set of competencies as a standard for graduation; and, the certification process should include a summary of what constitutes successful performance of the competencies.

WHAT OTHER SCHOOL DISTRICTS ARE DOING--PAST AND PRESENT

The literature is replete with information on the status of competency movements in various places around the country. Below are nine (9) local districts which serve as examples of what can be done to develop a local competency based educational program and testing system.

--Denver, Colorado began its competency program in 1960. It includes paper and pencil criterion referenced tests in areas of numeration, spelling, language, and reading. Student competencies are measured in grades 3, 6, 9, 10, 11, and 12. Through retesting and remediation, Denver has reduced its failure rate to 1.5%. (This does not include students who drop out or fail to graduate for lack of course credits.)

--Kanawha County, West Virginia's program began in 1977. It includes informal checks of basic skill progress in the first grade and follows the student's progress until graduation; the results of the Comprehensive Tests of Basic Skills (CTBS) of the statewide testing program in grades 3, 6, and 9 are used as competency checks with established cut-off scores. Basic competency testing begins at grade 10. All students are required to take the locally developed tests. The model requires periodic checks by teachers and reporting results to parents at all grade levels of competency status. Remediation steps to correct problems are built into the model at every grade level.

--Detroit Public Schools adopted an objective referenced instructional program to improve instruction in basic skills. The program would eliminate awarding high school diplomas to low-performing students. Spring, 1980 marked the first city-wide administration of the proficiency tests to all tenth and eleventh grade students. In the first year, 81% of the pupils passed the reading test, 55% passed the writing test, and 49% passed

the mathematics test. Remedial classes are offered during the regular and summer school year to help students master any competencies they have not yet passed. After 1981, graduating students who have failed to pass all three tests - reading, writing, and mathematics - will not receive an endorsed diploma from the Detroit Board of Education.

--Jefferson County, Colorado, Schools developed a criterion-referenced record keeping system for documenting competencies in reading, mathematics, and language arts for elementary and junior high students. In 1972-73 approximately 50% of the fourth, sixth, and eighth graders scored above national norms on their standardized tests. During the 1978-79 school year 70% of the students scored above the national norms.

--Pasadena, California developed a sequential course of study of "minimum essentials" in math and English. Beginning in 1980, students were required to pass proficiency tests in writing, computation and reading comprehension to graduate. Testing is done once between seventh and ninth grades and twice between tenth and eleventh grades. The district has developed their own textbooks in math and English for grades seven through ten. Texts for eleventh and twelfth grades are being developed.

--Southeast Free School, Minneapolis, Minnesota is a K-12 non-graded alternative school. Graduates must demonstrate proficiency in five core areas--communication/language arts; math; social perspective/humanities; science; and personal independence/initiative--plus two additional subjects from the following: any two skills listed in the Dictionary of Occupational Titles (DOT) or additional proficiencies in any two of the five core areas.

--Portland, Oregon began its program in Fall, 1977. A city-wide minimum competency achievement testing program in reading, mathematics, and language is used (seven additional competencies to be added in 1981) in grades 3 through 12.

--Medford, Oregon began its program in 1974. It includes district aims (broad goals), scope and sequence of objectives, a planned course statement, and lesson plans. When fully operational, student achievement will be measured in four ways:

- standardized tests
- grades in class
- developmental scales
- competencies

--Berea, Ohio began their program with eighth grade reading and math proficiency exams. Tenth graders take an abbreviated Adult Performance Level Survey (APL). In the eleventh grade the full APL exam is given. As of 1980, all graduates must pass the APL.

Currently 37 states have mandated minimum competency testing in schools. Of the remaining 13 states, some have sought an alternative to the state-mandated programs. A recent survey was conducted by National Institute of Education involving states and/or local districts which have minimum competency testing programs. Of the 31 states surveyed, 61% listed remediation as the main purpose for instituting the program. Sixteen of twenty local districts reported certification of basic skills as the main reason for using minimum competency testing. All programs assessed reading and math proficiency. Nearly 87% of the states and 75% of the local districts also assess writing and/or language art skills. Ralph Tyler, founder of the National Assessment programs, indicated that while state testing programs are increasing, there is a need for more local assessment. He believes that the educational system is so large and diverse that one test for all students is impossible.

State and national programs should be used as guides for local planners to help teachers and curriculum developers identify and clarify educational objectives, focus on parts of programs that are effective, and assist in building public understanding and encouragement of local assessment.

DIFFERENT WAYS TO TEST

There are five basic alternatives in establishing the subject areas to be tested in a competency based testing program. They include:

1. Basic skills.
2. School subjects.
3. Life role competency areas.
4. Basic skills applied in school subjects.
5. Basic skills applied in life role competency areas.

Next a test must be chosen or developed to assess minimum competency. Choices could include:

--Actual performance situations or on the job assessment is preferable but it is expensive, time consuming and the results would arrive too late.

--Simulated performance situations results don't always match actual situation, they are more expensive and more time consuming than a paper/pencil test.

--A review of student products may be misleading since students may have received help in completing the product, time restraints are often missing, and the results are often subjectively scored.

--Paper/pencil tests are the easiest to administer, score, and are less costly than other forms of testing minimal competencies. They measure a narrow band of knowledge or skill, but are removed from actual performance situations and the results may not be accurate enough to predict success in later life.

Another consideration is knowing what grades levels to assess and how often. The choices range from continuous to

exiting high school only. If assessment determines promotions, lead time should be allowed preceding implementation. This provides students with time to receive instruction in those areas to be assessed but not previously taught. Finally, one must bear in mind that competency testing programs are costly.

The establishment of minimum standards is a problem. The issue of "minimal competency" implies a single minimum standard of proficiency without regard to varying student abilities. Because of the diverse student abilities, a standard according to ability has been suggested but creates other problems (e.g., how many ability groups, should different diplomas be granted, etc.). Setting a standard or a set of standards is neither straightforward nor without its hazards. Selection of a passing score could be done by:

--Arriving at consensus by a representative group;

--Testing an external pilot criterion group and use its performance as the basis for setting the score;

--Using educators to designate minimum performance on the test.

HOW BEREA, OHIO STARTED THEIR COMPETENCY TESTING PROGRAM

Many of the basic considerations in the design of a competency based system have been reviewed. The examples of what other local districts have done shows the diversity of approaches to competency based testing. Still another component is lacking. How do educators and the public come together to agree on minimum competencies and implement a program? Berea, Ohio exemplifies how one school district addressed this issue. Berea was chosen as an example because it is similar in size to Saginaw. Although Berea's plan was specifically designed for high school competencies, the steps they followed could be adapted to an elementary model.

The Setting: Background

In August, 1975, the Berea City School District published a report entitled, Toward a Community of Experiences: Report of the Task Force to Study the Attitudes, Values and Behaviors of High School Age Students. The report focused on three major goals which Task Force Members believed are fundamental for the improvement of the climate and educational programs of the Berea High School and Midpark High School. They are:

- Improve the human relationships in the schools
- Utilize student time more effectively
- Improve student skills

The Superintendent of Schools indicated to Board of Education Members in his letter of transmittal regarding the

contents of the Report that accomplishing these goals will take time and a great deal of effort by all facets of the school community. However, he further indicated that the proposal in the Report which can have the greatest impact in the high schools and the entire school district is the proposal related to improving student skills. Basically, this section of the Report recommends that in order to graduate from high school, a student must not only accumulate 17 credits of acceptable course work and fulfill the attendance requirements; but, he must also demonstrate a prescribed level of competency in certain areas, such as: reading, writing, mathematics, human relations, and relevant content subjects which relate directly to productive adulthood.

As a result of these recommendations, the Superintendent of Schools directed the Assistant Superintendent for Instruction to organize a Competencies Commission of parents, students, and professional staff members to study ways and means to implement the policy changes described in Task Force Recommendations for improved student skills.

Competencies Commission Organization

Commission Members were nominated by school principals, and they were contacted in September of 1975. In order to operate effectively, an eignt member Steering Committee was organized. The tasks of the Steering Committee included: developing agendas, organizing resources, contacting

consultants, reviewing the research and literature, and synthesizing ideas and concepts developed by the Commission Membership.

In the initial organizational phases of the study, Commision Members identified the specific tasks of the Commission, discussed graduation and diploma requirements, and established product-goals for the Commission. These tasks, requirements and goals are outlined below:

1. Tasks of the Commission:

   - Identify and determine the "functional, coping, enabling and/or survival" competencies in reading, mathematics, problem-solving, human relations and other appropriate areas (consumer economics, community resources, health, occupational knowledge, government and law) which are necessary and essential for all students--prior to graduation--for successful adult living.
   - Describe these competencies in behavioral terms which can be measured.
   - Indicate the levels of competency which all students must demonstrate to show mastery.

2. Graduation/Diploma Requirements:

   - Should reflect the public's expectations for secondary education.
   - Should be distinctive, representing an accomplishment, at least in part, which is independent of other factors.
   - Should not necessarily mean that the holder is prepared for a job nor should it particularly signify that the holder is ready for college. Rather, the diploma should certify that the graduate possesses the baseline skills and knowledge essential to an effective adult citizenship.
   - An ability to read, write and compute with specified proficiency.

- A minimum proficiency in the prioritized knowledge areas or those included in the Adult Performance Level Goals.

- Possess the skills to acquire the information necessary to be a citizen and a worker.

- The successful completion of a series of courses and/or planned experiences, some of which involve a group setting.

3. Product Goals:

As a result of the research, study and recommendations of the Commission, personnel in the schools will:

- Assure the public that graduating classes are gaining certain skills, knowledges and understandings.

- Establish a minimum meaning to the diploma.

- Develop a functional competency for each individual student prior to graduation in seven (7) skill areas (Reading, Writing, Speaking, Listening, Computation, Problem-Solving and Interpersonal-Relations) related to the five (5) knowledge areas (Consumer Economics, Community Resources, Government and Law, Health and Occupational Knowledge).

- Assist individual students in obtaining the minimum skills, knowledge, and understanding which are perceived as being essential to survival in a producer-consumer society.

Research and Study Activities of the Commission

From 1975, when the Competencies Commission was organized, until June 15, 1977, Commission Members planned, organized and implemented over fifty-four meetings and study sessions including Commission, Steering Committees and Sub Committee Meetings. A listing of important tasks are given below:

- Studied the High School Task Force Report intensively.
- Conducted six ERIC (Educational Resource Information Centers) searches for resources and materials.
- Contacted twenty-six State Department of Education Departments to ascertain what was being done in competency based education within specific states.
- Used the services of Educational Testing Service, American College Testing Service and Westinghouse Corporation extensively as resources for testing instruments.
- Contacted Educational Research Services to search for competency based educational projects in progress and personnel working in the area.
- Utilized services of ERCA (Educational Research Council of America) to identify resources and projects.
- Contacted and communicated with 88 different school systems throughout the country who have been identified as developing or implementing some type of competency based education (60 in 1975-76 and 28 in 1976-77).
- Used many on-site consultants.
- Identified functional or coping competencies in communication skills and computational skills along with performance indicators for these skills.
- Validated these skills (above) through feedback from local parent and civic groups.
- Transformed the communication and computation skills and performance indicators into specific test objectives and items.
- Developed the High School Reading Proficiency Test (HSRPT)--grades 9-12 and the Competency Test in Basic Mathematics (CTBM) from the communication skills, computation skills and problem-solving competencies and performance indicators designed by the Commission.
- Administered the HSRPT to all students in grades 9-12 (approximately 3,700). Administered CTBM to a random sample (approximately 800 students). The analysis of these test scores provided further validation for the need to develop specific competency levels.

- Interpreted Reading Test data to all students and began implementing assurance programs to meet the needs of the students.

- Studied the goals and objectives of the Adult Performance Level Project in relationship to the competencies and performance indicators developed locally. Using the Commission's competencies and performance indicators as criteria, determined which APL goals, objectives and performance indicators would serve local needs as well as or better than those developed. Prioritized APL Knowledge and Skill goals and objectives in relationship to local needs.

- Utilized consultants to provide additional information regarding using the American College Testing Adult Performance Level Tests.

- Administered Adult Performance Level High School Survey Test to a random sample of tenth grade students from Berea High School and Midpark High School.

- Developed a status report, Review of Activities, in March of 1977 to determine understanding and acceptance of the Commission's work by the Commission and by various sub-publics. This Review of Activities described the tasks of the Commission, the task which had been completed, the prioritized knowledge goals, criteria for graduation requirements, diploma requirements, product goals of the Commission, definitions of the terms being used by the Commission, overview of the objectives of the High School Reading Proficiency Examination, considerations in developing tentative recommendations with some examples, a sample of the APL Grid including skill area competencies and knowledge area competencies, and a "sample or example" of possible components of an assurance program.

- Developed Tentative and Preliminary Recommendations (March 2, 1977). This document was developed by the Steering Committee using the ideas and suggestions developed by the Commission.

- Distributed Recommendations to various parent and civic groups for reactions and suggestions. Presented fourth revision (May 4, 1977) to Commission for final reactions. The fifth revision represents the final recommendations (Summary Report of the Commission, 1977).

As it can be seen, developing a competency program takes much time, planning, and commitment.

PROBLEMS AND BENEFITS TO CONSIDER

There appears to be no perfect system or program to use as a model for universal adoption. Potential models are in a continual state of change due to unanticipated problems. Following is a partial list of the benefits and problems that competency programs may possess.

BENEFITS

1. Focus on curriculum.
2. Identifies individual needs of students.
3. Increased communication among teachers as to needs and sequence of instruction.
4. Individualization of instruction.
5. Documentation of what's happening in the classrooms.
6. Students aware of what their responsibilities are regarding learning.
7. Publication of test results makes the public more aware of schools' strengths and weaknesses.
8. Diploma and/or promotion to another grade become more meaningful--not just social promotion.
9. Everyone would be taught same core content area skills within a particular local district, region, or state.

PROBLEMS

1. Basic skills emphasis may preclude development in other areas.
2. Increased number of remedial programs needed.
3. Fewer or decreased group activities and broad learning experiences.
4. Increased record keeping and costs.
5. Teachers may be tempted to teach to the test.
6. Minimum standards may become maximum for some students.
7. Test results may be used incorrectly.
8. Burden placed on disadvantaged students.
9. Expanded teacher inservice, creating a large financial and administrative drain on system.
10. Single score could determine future for children.
11. Increased cost of testing.

PROBLEMS

12. May be inappropriately used as teacher evaluation tool.

13. Measuring competencies without assessing aptitude may be unfair.

14. Legal implications such as: descrimination of race and/or handicap or lack of validity and reliability of the tests.

15. The success or failure of students can become a political issue.

16. Increased potential for negative media coverage.

SUMMARY AND RECOMMENDATIONS

On the surface competency testing appears to be a simple concept. However, as competency programs are designed and implemented, they become increasingly more complex. The complexity of such a program comes from meeting the concerns of various groups that must come to a consensus to make a workable program. Adoption of any program may have far-reaching effects on schools, teachers, students, administrators, parents, and the community. It is imperative that any competency program design be developed carefully.

It is recommended that:

1. The minimal competency testing program's purpose be clearly specified at the outset, i.e., is the purpose to certify students for a high school diploma?, to hold schools accountable for teaching certain skills?, to decide on grade-to-grade promotion?, etc.;

2. The desired competencies for the program be specified so that all parties understand what areas are to be tested (it is not enough to use "catch" words, such as basic skills, life skills, etc., but rather to define the types of competencies desired);

3. Careful consideration be given to the nature of the desired competencies. Initially competencies should be restricted to the areas of reading, writing, and math;

4. Parties be aware that instituting a minimal competency program does not insure the desired results;

5. Policies be carefully designed and worded so that schools can implement a legal program capable of yielding the desired outcomes;

6. Indirect pupil assessment measures be validated against direct measures;

7. The program actually holds the desired parties, and only those parties, accountable;

8. Parties be aware that human judgment is integral to setting standards or cut-off scores;

9. The implications of potential standards be determined through pilot-testing, prior to the program's implementation;

10. A range of educationally, financially, and politically acceptable failure rates be established prior to the program's implementation;

11. Cost estimates--both financial and human--for the program be obtained; and

12. The implications of the program, including the competencies selected, tests used, and standard of performance desired on curriculum and instruction be thought through.

Other recommendations, not directly related to the problems and issues overviewed here, are also warranted. Districts newly embarking on a minimal competency testing program can learn a great deal from other states or districts who are further along in their implementation of a program. Unfortunately, answers to many of the questions which will arise are not readily obtainable in written form. Most often, persons in charge of ongoing programs must be contacted personally to obtain the desired information. To guide districts newly embarking on a minimal competency program, the following, more general recommendations are offered.

1. Take a course of careful consideration and planning of the program even though this approach means more time before a program can be implemented;

2. Plan a strategy to insure that various publics, including community leaders, parents, and school staff, are informed about minimal competency programs and its ramifications;

3. Alert various publics to the problems and implications of adopting a minimal competency program [e.g., a viewing of a series of video tapes on minimal competency testing from the National Institute of Education, aired recently on the Public Broadcasting System (PBS), would be beneficial to those parties];

4. Obtain information regarding the minimal competencies that are common to, and those that are unique to, affected curricula so that appropriate lead time can be allowed for adjustment of the curricula;

5. Form committees representing a broad cross-section of the community to finalize the desired competencies. This lends credibility to the program and assures support from the sectors represented;

6. Give careful consideration to exceptional students, e.g., physically handicapped students, mentally impaired students, English as a second language students, etc., and how they are to be treated under the program;

7. Validate tests to determine how well they differentiate between groups who have attained the competencies from groups known not to have attained the competencies; and

8. Do not tie performance on the minimal competency test to grade to grade promotion or high school graduation until the issues and problems raised in this paper have been addressed satisfactorily. Only then is it appropriate and valid to tie test performance to promotion or graduation.

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